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Abstract

A study with $n = 55$ younger (18–33 years, $M = 23.67$) and $n = 58$ older adults (61–85 years, $M = 71.44$) investigated age-related differences in social approach and avoidance motivation and their consequences for the experience of social interactions. Results confirmed the hypothesis that a predominant habitual approach motivation in younger adults shifts towards a stronger avoidance motivation in older adults. Moreover, age and momentary motivation predicted the experience of an actual social interaction. Younger adults reported stronger negative emotions in a rejection situation when striving to approach acceptance rather than avoid rejection. Conversely, older adults reported less positive emotions in a rejection situation when they attempted to avoid rejection than approach acceptance. Taken together, the present study demonstrates that the same motivation has different consequences for the experience of potentially threatening social situations in younger and older adults. People seem to react emotionally when the achievement of important developmental goals (approaching others in young adulthood, avoiding negative social interactions in older adulthood) is thwarted. Moreover, results suggest that approach and avoidance motivation play an important role for socio-emotional development.

Keywords: adult development, social motivation, approach, avoidance, social acceptance, social rejection

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Feeling connected to others and not being left out seems to be a central human need across cultures and throughout the life span (Baumeister & Leary, 1995). However, the relative importance of seeking acceptance (*social approach motivation*) versus avoiding rejection (*social avoidance motivation*) might change across the lifespan. The current study investigated age-related differences in social approach and avoidance motivation across adulthood. In addition, we investigated if approach and avoidance motivation has age-differential consequences for the experience of social situations.

Research on motivational development shows that younger adults are generally more oriented towards achieving gains, whereas older adults become increasingly motivated to maintain functioning and avoid losses (for an overview see Freund, Hennecke, & Mustafic, 2012). Regarding the social domain, young adulthood is characterized by developmental tasks such as building meaningful social ties, having a romantic relationship, and maintaining social relationships at the work place (Nikitin & Freund, 2008). As approach motivation helps to build new social ties (Gable, 2006), young adults might be particularly approach motivated (Gable & Berkman, 2008; Nikitin & Schoch, 2014). Accordingly, young adults typically report approach goals in the social domain (Elliot, Gable, & Mapes, 2006). However, social motivation changes as people age. In older adulthood, optimizing social experiences in the here and now takes precedence over building new relationships (Carstensen, 2006). Consequently, older adults are particularly motivated to preserve harmony and avoid tension in their social relationships (e.g., Birditt, Fingerman, & Almeida, 2005). To our knowledge, there are no studies directly comparing social approach and avoidance motivation in younger and older adults. One goal of the present study was to investigate age-related differences in social approach and avoidance motivation.

Another goal of this study was to learn more about the age-differential consequences of approach and avoidance motivation for the experience of social situations. Given the differential importance of social approach and avoidance motivation for the achievement of developmental tasks in younger and older adulthood, social approach and avoidance motivation should have also different emotional relevance in these age groups. When the pursuit of personally important goals is successful, people experience this as rewarding. In contrast, when the pursuit of personally important goals is thwarted, people experience this as threatening (Carver & Scheier, 1990). Thus, positive social interactions should be particularly rewarding and negative social interactions particularly aversive for younger and older adults when they pursue their predominant goals. More specifically, younger adults should be particularly happy when they attain an approach goal, and suffer particularly when they cannot attain an approach goal. In contrast, older adults should be particularly happy when they attain an avoidance goal, and suffer particularly when they cannot attain an avoidance goal.

In the present study, we use *interpersonal acceptance* as a positive social situation. Interpersonal acceptance satisfies both approach and avoidance goals because it reflects the success to socialize with another person (which lies at the core of approach motivation) as well as the success to avoid a negative social interaction (which lies at the core of avoidance motivation). In contrast, *interpersonal rejection* represents a negative social situation; it thwarts both approach and avoidance goals because it reflects the failure to socialize with another person and the failure to avoid a negative social interaction.

Reactions to acceptance and rejection can be assessed on different levels of functioning. In the present study, we included self-reported emotional experiences and physiological reactions. Self-report and physiological measures of emotional experiences are sources of related but different information. Physiological measures tap primarily into the motivational and

behavioral response systems that help managing social situations (Ford & Collins, 2010). Self-reported emotions reflect the subjective experience of social situations and may or may not correspond with physiological reactions (Cacioppo, Bernston, Larsen, Poehlmann, & Ito, 2000).

Previous research has demonstrated that social acceptance and rejection affect both positive and negative emotions in younger and older adults (Charles & Carstensen, 2008; Hawkley, Williams, & Cacioppo, 2011; Löckenhoff, Cook, Anderson, & Zayas, 2013). In contrast, physiological reactions should be best observable in the rejection situation. As Ford and Collins (2010, p. 406) put it, "because social acceptance is critical to safety and survival, humans evolved physiological and neural processing mechanisms designed for monitoring threats to social acceptance." In acceptance situations, physiological arousal should be generally less pronounced than in rejection situations because social acceptance is not threatening. Social-threat reactions are best assessed on the level of activation of the sympathetic nervous system (Cacioppo, Tassinary, & Bernston, 2007). A useful measure of the level of activation of the sympathetic nervous system is skin conductance level (SCL; Bradley & Lang, 2000).

Study Design and Hypotheses

A first, self-report part of the current study assessed habitual social motivation and tested the hypothesis that younger and older adults report different levels of approach and avoidance motivation. A second, social-interaction part of the current study tested the hypothesis that younger and older adults react differently to social rejection and acceptance depending on their momentary social motivation. The social-interaction part of the study used a $2 \times 2 \times 2$ mixed design with age (young vs. old) and experimentally manipulated motivation (approach condition vs. avoidance condition) as between-participants factors and experimentally manipulated social situation (acceptance situation vs. rejection situation) as a within-participant factor. Each participant was involved in two dyadic social interactions with two different interaction partners.

One of the interactions was positive (acceptance) and one was negative (rejection). Prior to each interaction, social approach and avoidance motivation was experimentally manipulated using a computer task.

Together, the two parts of the study were designed to test the following hypotheses:

1. *Habitual social approach and avoidance motivation*: Younger adults are expected to report higher levels of approach motivation and lower levels of avoidance motivation than older adults.

2. *Self-reported positive and negative emotions in the social interaction*: We hypothesize that the emotional experience of the social interaction is a function of age (young vs. old), motivational condition (approach vs. avoidance), and situation (acceptance vs. rejection). Younger adults should report more positive and less negative emotions in the acceptance situation when they are in the approach condition compared to the avoidance condition. They should also report less positive and more negative emotions in the rejection situation when they are in the approach condition compared to the avoidance condition. Older adults should report more positive and less negative emotions in the acceptance situation when they are in the avoidance condition compared to the approach condition. They should also report less positive and more negative emotions in the rejection situation when they are in the avoidance condition compared to the approach condition.

3. *Skin conductance level in the social interaction*: Skin conductance level in the social interaction is hypothesized to be a function of age (young vs. old), motivational condition (approach vs. avoidance), and situation (acceptance vs. rejection). Younger adults should react with higher skin conductance level in a rejection situation when they are in the approach condition compared to the avoidance condition. Older adults should react with higher skin

conductance level in the rejection situation when they are in the avoidance condition compared to the approach condition.

Note that older adults generally report higher levels of positive emotions and lower levels of negative emotions than younger age groups (e.g., Carstensen, Pasupathi, Mayr, & Nesselroade, 2000), which might result in a main effect of age on emotional experience in social interactions. In addition, older adults generally show attenuated electrodermal activity (Gavazzeni, Wiens, & Fischer, 2008), which might lead to a main effect of age on the physiological response.

Method

Sample

We recruited younger adults from the participant pool of the Life Management Lab at the University of Zurich, via advertisements on campus, and on different online platforms. Older participants were recruited at the Senior University Zurich, senior clubs, and via advertisements on different online platforms. The definitive sample[1] consisted of $n = 55$ younger (44% male, age $M = 23.67$ years, $SD = 3.70$, range 18 – 33) and $n = 58$ older adults (55% male, age $M = 71.44$ years, $SD = 6.31$, range 61 – 85). The majority of the participants were Swiss (72%), twenty participants were German, and the other participants reported other European nationalities, but with very good German proficiency. Fourty-seven percent of the sample reported being in a steady partnership, 29% were single, 6% were widowed, and 12% were divorced. Seven participants did not report their relationship status.

Procedure

The study was announced as a study on communication that investigates how people get to know each other. After providing informed consent, participants completed a sociodemographic questionnaire and a questionnaire assessing their habitual social approach and avoidance motivation. They filled out this part of the questionnaire at home. Approximately one

week later, they were invited to the laboratory. Each participant was involved in two dyadic social interactions with two different interaction partners who were both trained confederates. Gender and age-group membership of the participant and the confederate were matched. One of the interactions was positive (acceptance) and one was negative (rejection). The order of the acceptance and the rejection interaction was randomized. The task for the participant and the confederate was to get to know each other.

After the participant arrived in the laboratory, s/he was informed about the procedure and provided informed consent. The confederate, ostensibly another participant, was already in the room. Electrodes for recording SCL were attached to the fingertips. Baseline SCL was assessed while watching neutral pictures on a computer screen. Then the baseline emotions were measured. After that, approach and avoidance motivation were experimentally manipulated using a computer task described below. After the interaction, momentary emotions were again assessed. The confederate then left the room and another confederate entered for the second interaction. The procedure for the second interaction was identical except for the confederate's behavior (accepting or rejecting behavior). Participants were fully debriefed and received 30 CHF (approximately 34 USD) for participating.

Materials and Measurements

Assessment of habitual social approach and avoidance motivation. Approach and avoidance motivation was assessed using the Relationship Goals Questionnaire (Elliot et al., 2006), which we translated and adapted to new social relationships. Participants were instructed to think of relationships that they have recently formed or will form in the future and to respond to eight items describing approach and avoidance motivation for such relationships. An example of an approach-motivation item is "I want to share many fun and meaningful experiences with my new friends." An example of an avoidance-motivation item is "I try to avoid disagreements

and conflicts with my new friends." Responses were assessed on a Likert scale ranging from 0 (*not at all true of me*) to 6 (*very true of me*). The internal consistency of the approach-motivation scale was Cronbach's $\alpha = .84$ (4 items, $M = 3.34$, $SD = 1.02$); that of the avoidance-motivation scale was Cronbach's $\alpha = .84$ (4 items, $M = 2.58$, $SD = 1.35$). Two persons did not report their habitual approach and avoidance motivation.

Manipulation of social acceptance and rejection. Eight confederates were trained to behave in an accepting or a rejecting manner when getting to know the participants. The acceptance situation was designed to communicate interest in the participant. The rejection situation was designed to communicate a lack of interest in the participant. Two confederates were young men, two were young women, two were older men, and two were older women. All confederates were lay actors. Each confederate behaved in half of the interactions in an accepting manner and in half of the interactions in a rejecting manner. The confederates were blind to the hypotheses.

As a manipulation check, we asked participants how much they felt liked by the interaction partner (0 = *not at all*, 6 = *very much*; $M = 4.12$, $SD = 0.88$). Participants reported feeling more liked by the interaction partner in the acceptance situation ($M = 4.85$, $SD = 0.81$) than in the rejection situation ($M = 3.44$, $SD = 1.27$), $t(1, 111) = 11.32$, $p < .001$, $d = 2.15$. One person did not respond to this question after the acceptance situation. There was no systematic indication of actor effects.[2]

Manipulation of approach and avoidance motivation. Approach and avoidance motivation were manipulated by moving a joystick towards photos of happy faces (approach condition) or away from photos of angry faces (avoidance condition). As has been shown in previous research, approach movements induce approach motivation, whereas avoidance movements induce avoidance motivation (Kawakami, Phills, Steele, & Dovidio, 2007). In the

present study, we used a distance-reducing/distance-enlarging approach (Eder & Rothermund, 2008). In the approach condition, participants were asked to move a manikin as quickly as possible towards happy faces and not to move it when a neutral face appeared (the neutral face trials were used to ensure that the movements were based on evaluations of the stimuli). In the avoidance condition, participants were asked to move a manikin as quickly as possible away from angry faces and not to move it when a neutral face appeared. Participants used a joystick to move the manikin. The facial stimuli were from the Life Database of Adult Emotional Facial Stimuli (Ebner, Riediger, & Lindenberger, 2010). Participants were randomly assigned to the approach (n = 29 younger, n = 30 older adults) or the avoidance condition (n = 26 younger and n = 28 older adults). Each participant underwent the same manipulation twice, once before the first and once before the second interaction because motivational priming lasts only for a short time (Bargh & Chartrand, 2000).

As a manipulation check, participants reported approach and avoidance motivation for the subsequent social interaction. Three items assessed approach motivation: "In the following interaction, it is important for me …" "… to have a good conversation," "… to be interesting," and "… to make a good impression." Three items assessed avoidance motivation: "In the following interaction, it is important for me …" "… not to have a bad conversation," "… not to be boring," and "… not to make a bad impression." Responses were given on a Likert scale ranging from 0 (*not at all true of me*) to 6 (*very true of me*). The internal consistency of the approach-motivation scale was Cronbach's α = .78 (M = 3.96, SD = 1.00) and that for the avoidance-motivation scale was Cronbach's α = .80 (M = 3.74, SD = 1.21). A paired-samples t test confirmed that the manipulation yielded the intended effect: In the approach condition, participants reported higher levels of approach than avoidance motivation for the subsequent social interaction (M_{diff} = 0.33, SD_{diff} = 0.72). In the avoidance condition, this pattern was not

reversed but the difference was less marked (M_{diff} = 0.08, SD_{diff} = 0.53), $t(111) = 2.12$, $p = .04$, $d = 0.40$. In addition, in the approach condition, the ratio between approach and avoidance motivation was significantly different from zero, $t(58) = 3.55$, $p = .001$, $d = 0.93$, suggesting a significantly higher approach than avoidance motivation. This was not the case in the avoidance condition, $t(53) = 1.06$, $p = .29$, $d = 0.29$, suggesting an equal level of approach and avoidance motivation.

Assessment of self-reported emotions. Momentary emotions before and after the interaction were assessed with two parallel versions of the Multidimensional Mood Questionnaire (Steyer, Schwenkmezger, Notz, & Eid, 1997). Version A assessed emotions before the social interaction, Version B assessed emotions after the interaction. Each of the parallel versions of the MDMF consists of 12 adjectives (e.g., happy, bad) that can be aggregated into a score reflecting positive and negative emotions. Participants were asked how they felt at the moment. Responses were assessed on a Likert scale ranging from 0 (*not at all*) to 6 (*very much*). Emotions before the interaction served as a baseline. Internal consistencies for positive emotions were Cronbach's α = .84 (before the acceptance situation), α = .83 (before the rejection situation), α = .80 (after the acceptance situation) and α = .82 (after the rejection situation). Internal consistencies for negative emotions were α = .83 (before the acceptance situation), α = .80 (before the rejection situation), α = .76 (after the acceptance situation) and α =.79 (after the rejection situation). Descriptive statistics (*M*, *SD*) for all conditions are presented in Table 1.

Assessment of skin conductance. Skin conductance recordings were performed using Biopac MP150 system (BIOPAC Systems, Inc., Goleta, California) with two Ag/AgCl electrodes filled with isotonic (0.05 % NaCl) electrolyte medium. The electrodes were attached to the fingertips of the index and middle fingers. In order to minimize the occurrence of motion artifacts, the participant's hand was attached to the armrest using a belt with a hook-and-loop

fastener. Data were sampled with 1 kHz, the low-pass filter was set to 0.05 Hz, and no high-pass filter was activated. The skin conductance data were visually inspected offline to exclude artifacts.

The SCL baseline was assessed during a 3-minute presentation of neutral pictures. Thirty-six pictures of neutral non-social events (e.g., household objects) were taken from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert, 1998). Participants were instructed to sit quietly, relax, and just watch the picture stream without doing anything else. The data were log-transformed (Venables & Christie, 1980). The non-transformed SCLs (*M*, *SD*) of all experimental conditions are presented in Table 1.

Control variables. We controlled for baseline emotions and baseline SCL. In addition, we included gender as a control variable because there is empirical evidence showing that men and women react differently to social acceptance and rejection (Stroud, Salovey, & Epel, 2002).

Results

Habitual Social Approach and Avoidance Motivation

Age-related differences in habitual approach and avoidance motivation were analyzed with a repeated-measures ANOVA with habitual motivation (approach vs. avoidance) as a within-participant factor and age as a between-participants factor. We found a main effect of habitual motivation ($F[1, 109] = 39.52$, $p < .001$, $\eta_p^2 = .27$) suggesting that, on average, participants reported higher levels of approach ($M = 3.34$, $SD = 1.02$) than avoidance motivation ($M = 2.58$, $SD = 1.35$), and a main effect of age ($F[1, 109] = 13.71$, $p = .008$, $\eta_p^2 = .06$) suggesting that older adults reported higher approach and avoidance motivation ($M = 3.20$, $SD = 1.10$) than younger adults ($M = 2.71$, $SD = 0.78$). These main effects were qualified by the hypothesized Age × Habitual Motivation interaction: $F(1, 109) = 10.11$, $p = .001$, $\eta_p^2 = .10$ (see Figure 1). As expected, younger adults reported lower levels of avoidance motivation than older

adults, $t(109) = -3.81$, $p < .001$, $d = 0.73$. We did not find the hypothesized age-related difference in habitual approach motivation, $t < 1$. However, younger adults reported higher levels of approach than avoidance motivation, $t(53) = 7.32$, $p < .001$, $d = 2.01$, whereas approach and avoidance motivation was more balanced in older adults, $t(56) = 1.90$, $p = .06$, $d = 0.51$.

Self-Reported Positive Emotions in the Social Interaction

To control for the baseline of positive emotions and gender, we regressed positive emotions after the interaction on the control variables and used the unstandardized residuals as the outcome variables for the subsequent analyses. Higher values indicate more positive emotional experience.

A repeated-measures ANOVA with emotions in the acceptance and the rejection situation as a within-participant factor and manipulated motivation (approach vs. avoidance) and age (young vs. old) as between-participants factors revealed the expected Situation × Motivation × Age interaction, $F(1, 109) = 7.79$, $p = .006$, $\eta_p^2 = .07$ (see Figure 2, upper graph).[3] In line with the hypotheses, older adults' positive emotions were affected by a Situation × Motivation interaction, $F(1, 56) = 7.87$, $p = .007$, $\eta_p^2 = .12$. In the rejection situation, older adults experienced less positive emotions when they were avoidance motivated than when they were approach motivated, $t(56) = 1.99$, $p = .05$, $d = 0.53$. The effect in the acceptance situation did not reach statistical significance, $t(56) = -1.63$, $p = .11$, $d = 0.43$. Unexpectedly, older adults reported less positive emotions in the acceptance situation than in the rejection situation when they were approach motivated, $t(29) = -3.63$, $p = .001$, $d = 1.35$. Younger adults' positive emotions did not significantly differ as a function of the Situation × Motivation interaction,$F(1, 53) = 1.23$, $p = .27$, $\eta_p^2 = .02$ and there were also no main effect of situation or motivation on young adults' positive emotions (ps > .09). We will discuss these findings in the General Discussion.

Self-Reported Negative Emotions in the Social Interaction

First, we again regressed negative emotions after the interaction on the control variables and used the unstandardized residuals as outcome variables for the subsequent analyses. Higher values indicate more negative emotional experience.

A repeated-measures ANOVA with emotions in the acceptance and the rejection situation as a within-participant factor and motivation (approach vs. avoidance) and age (young vs. old) as between-participants factors revealed the expected Situation × Motivation × Age interaction, $F(1, 109) = 8.13$, $p = .005$, $\eta_p^2 = .07$ (see Figure 2, middle graph).[4] In line with the hypotheses, we found a significant Situation × Motivation interaction in older adults, $F(1, 56) = 4.33$, $p = .04$, $\eta_p^2 = .07$. However, none of the simple effects was statistically significant (all ps > .12). Younger adults' negative emotions differed as a function of the Situation × Motivation interaction, $F(1, 53) = 3.88$, $p = .05$, $\eta_p^2 = .07$. As expected, younger adults reported stronger negative emotions in the rejection situation when they were approach motivated than when they were avoidance motivated, $t(53) = 2.22$, $p = .03$, $d = 0.61$. No other simple effects were statistically significant, all ps > .06.

Skin Conductance Level in the Social Interaction

We again first regressed SCL during the interaction on the control variables and used the unstandardized residuals as outcome variables for the subsequent analyses. Higher values indicate higher physiological arousal.

A repeated-measures ANOVA with situation as a within-participant factor and motivation and age as between-participants factors showed that the expected Situation × Motivation × Age interaction was marginally significant, $F(1, 109) = 3.54$, $p = .06$, $\eta_p^2 = .03$. The hypothesized Situation × Motivation interaction was marginally significant for younger adults, $F(1, 53) = 3.60$, $p = .06$, $\eta_p^2 = .06$. None of the other interaction or simple effects reached statistical significance, all ps > .09.[5]

Discussion

The aims of the present study were to investigate (1) if younger and older adults differ in their social approach and avoidance motivation and (2) if approach and avoidance motivation have different consequences for younger and older adults' experience of social interactions. Given that developmental tasks in younger adulthood stress the importance of approaching others and in older adulthood the importance of avoiding negative social interactions, younger adults should also be more approach and less avoidance motivated than older adults. In addition, we assumed that approach and avoidance motivation has age-differential relevance for the experience of social situations. These hypotheses were partly supported by the results of the study. Overall, the current study provides three main insights on the role of motivation for socio-emotional development in adulthood.

First, younger and older adults differed with respect to their habitual motivation. As expected, older adults reported higher levels of avoidance motivation than younger adults. Unexpectedly, older adults did not differ in the level of approach motivation from younger adults. These results suggest that it is the *ratio* between approach and avoidance motivation that changes with age rather than the absolute levels. Younger adults seem to be more approach than avoidance motivated, whereas approach and avoidance motivation is more balanced in older adults. Similarly, participants in the interaction part of the study reported higher levels of momentary approach than avoidance motivation for the upcoming social interaction in the approach condition but there was no significant difference between momentary approach and avoidance motivation in the avoidance condition. However, avoidance motivation might have a higher motivational power than approach motivation. This interpretation is in line with previous research on the negativity dominance (Rozin & Royzman, 2001). Approaching (social) rewards is generally less motivating than avoiding (social) pain. Thus, when people report equal levels of

approach and avoidance motivation, the avoidance motivation might have a stronger impact on behavior and experience than the approach motivation. Future research is needed to test this interpretation of the current results more directly.

Second, the affective relevance of approach and avoidance motivation seems to change with age, particularly in negative social interactions. The emotional reactions to social rejection differed depending on age and motivational condition. Younger adults reported more negative emotions when they were approach motivated than when they were avoidance motivated. Older adults reported less positive emotions when they were avoidance motivated than when they were approach motivated. Although motivational effects are often assumed in research on socio-emotional development, Isaacowitz and Blanchard-Fields (2012) have stated a surprising lack of studies that explicitly assess or induce motivation. The present study is a first step in this direction.

Third, the present study addresses factors that explain age-related differences in the experience of social acceptance and rejection. Most of the factors that have been studied in previous research (i.e., reactivity of the autonomic nervous system, stressful life experiences, future time perspective, preference for close social partners, social network characteristics or attachment patterns; Hawkley et al., 2011; Löckenhoff et al., 2013) did not account for age-related differences. Results of the present study suggest that investigating motivational factors for the experience of acceptance and rejection is a promising approach.

Limitations

Most of the research on social experiences uses artificial experimental manipulations such as Cyberball (Charles & Carstensen, 2008; Hawkley et al., 2011; Löckenhoff et al., 2013). In the current study, we tried to mimic a more naturalistic setting of getting to know another person. Nevertheless, the current study has also several shortcomings. First, we found the expected

effects in the rejection situation but not in the acceptance situation. This might be because our manipulation of the acceptance situation was not strong enough to obtain the expected effects. In other words, the situation might not have been experienced as rewarding but as normative. Smiling and showing interest is probably the rule rather than an exception in a get-to-know situation. A more clearly rewarding situation would be needed to elicit strong positive emotions.

Second, although the pattern of the results was in the predicted direction, the hypothesized effects of age, motivation, and situation on the skin conductance level did not reach statistical significance. One possible explanation of this lack of significant findings is that the experimental rejection situation was very unobtrusive and might not have been sufficiently strong to induce stress in the participants. In line with the APA's ethical standards and in order to preserve the participants' integrity, we used a rather weak manipulation of social rejection.

Third, the current study found that approach motivated older adults reported more positive emotions in the rejection than in the acceptance situation. This finding was unexpected and is surprising given that participants felt less liked in the rejection than in the acceptance situation. One possible explanation of this finding is that older adults are less interested in forming new relationships (Carstensen, 2006) and, consequently, acceptance of a novel social partner might be less meaningful for them than for younger adults. So far, it has not been tested whether approach and avoidance motivation differ as a function of relationship closeness. Future studies should therefore address whether the findings of the present study can be generalized to previously established social relationships.

Despite these limitations, the pattern of the findings was fairly robust across different methods and when the data were analyzed with and without control variables. Hence, we are confident that the findings of the present research are meaningful, although it would strengthen them if they could be replicated in independent samples.

Conclusion

Age is an important variable for motivation with which we enter social situations and how we react to social acceptance and rejection. For younger adults, the accumulation of resources by establishing new social relationships is one of the central developmental tasks. In contrast, older adults' primary goal is to preserve harmony and avoid tension. These different motivations have an impact on how people experience social interactions.

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Footnotes

[1] The original sample consisted of $n = 64$ younger (59% male, age $M = 23.65$ years, $SD = 3.56$, range 18 – 33) and $n = 66$ older adults (53% male, age $M = 71.08$ years, $SD = 6.26$, range 61 – 85). Fifteen participants ($n = 9$ younger and $n = 6$ older adults) were excluded due to problems in the acquisition of the physiological data such as too many movement artifacts or non-responding. Two more older participants were excluded because they did not report baseline emotions in at least one of the social interactions. Eight of the excluded participants were in the approach condition; nine were in the avoidance condition. Eleven of them were males; four were females. The pattern of results did not substantially change after the exclusion of these participants and there were no systematic differences between the excluded participants and the remaining sample regarding their age, the distribution across the experimental conditions, and habitual approach and avoidance motivation. As there were more males than females in the excluded participants, we controlled for gender in the analyses.

[2] There were no differences between actors regarding how much participants felt liked by them in the acceptance situation, $F < 1$. There was only a difference between actors in the rejection situation, $F(7, 104) = 4.74$, $p < .001$. Importantly, this main effect was not qualified by an Actor × Motivation interaction ($F < 1$) suggesting that the feelings of being liked did not differ depending on the approach and avoidance condition.

[3] There was also a main effect of age, $F[1, 109] = 15.84$, $p < .001$, $\eta_{p2} = .13$, suggesting that older adults reported on average more positive emotions($M = 0.16$, $SD = 0.41$) than younger adults ($M = -0.17$, $SD = 0.46$). In addition, a significant two-way interaction of age and situation ($F[1, 109] = 5.20$, $p = .03$, $\eta_{p2} = .05$) suggests that this difference was more pronounced for the rejection situation (old: $M = 0.24$, $SD = 0.61$; young: $M = -0.25$, $SD = 0.65$; $t[111] = -4.12$, $p < .001$, $d = 0.78$) than for the acceptance situation (old: $M = 0.09$, $SD = 0.50$; young: $M = -0.09$, SD

= 0.47; $t[111] = -1.95$, $p = .05$, $d = 0.37$). No other main or interaction effects were significant (all ps > .20).

[4]There were no other significant main or interaction effects, all ps > .12.

[5] There was only a main effect of age, $F(1, 109) = 14.39$, $p < .001$, $\eta_p^2 = .12$, suggesting that younger adults showed overall a stronger physiological reaction ($M = 0.04$, $SD = 0.12$) than older adults ($M = -0.04$, $SD = 0.12$).

Table 1

Descriptive Statistics (Raw Data)

	Young				Old			
	Approach		Avoidance		Approach		Avoidance	
	Accept	Reject	Accept	Reject	Accept	Reject	Accept	Reject
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Positive emotions baseline	3.71 (0.84)	3.80 (0.85)	3.88 (0.59)	3.82 (0.76)	4.77 (0.69)	4.56 (0.85)	4.56 (0.82)	4.56 (0.76)
Positive emotions interaction	4.07 (0.71)	3.62 (0.88)	4.14 (0.63)	3.77 (0.58)	4.87 (0.74)	4.86 (0.81)	4.93 (0.62)	4.55 (0.70)
Negative emotions baseline	1.77 (1.01)	1.70 (0.91)	1.68 (0.80)	1.89 (0.80)	0.61 (0.66)	0.69 (0.69)	0.96 (0.86)	0.82 (0.83)
Negative emotions interaction	1.82 (0.63)	1.83 (0.95)	1.71 (0.47)	1.56 (0.73)	1.32 (0.54)	0.83 (0.68)	1.30 (0.52)	1.14 (0.86)
SCL baseline	2.39 (1.67)	1.97 (1.43)	2.40 (1.52)	2.26 (1.55)	1.05 (0.85)	1.40 (0.85)	1.16 (0.86)	1.30 (1.02)
SCL interaction	2.99 (1.48)	2.92 (1.42)	3.26 (1.63)	2.96 (1.53)	1.79 (0.71)	1.85 (0.78)	1.88 (0.90)	1.92 (1.01)

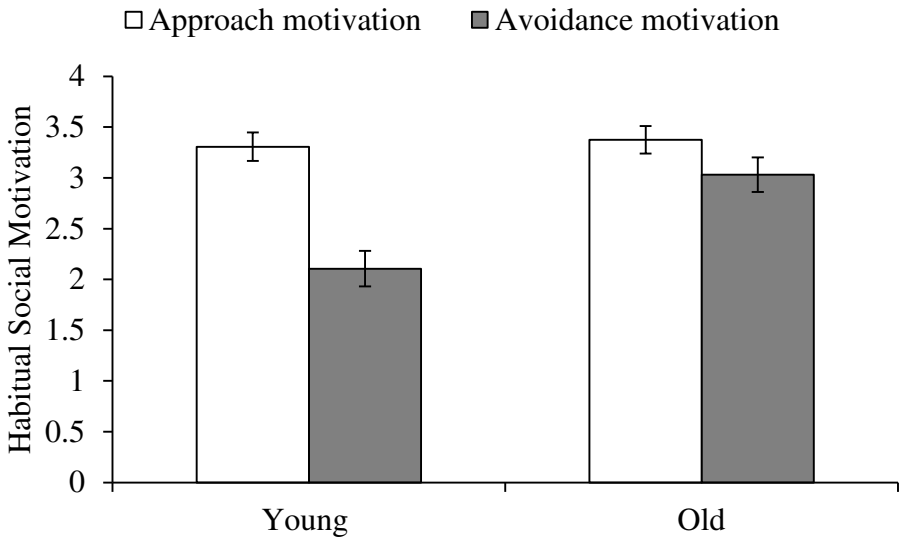
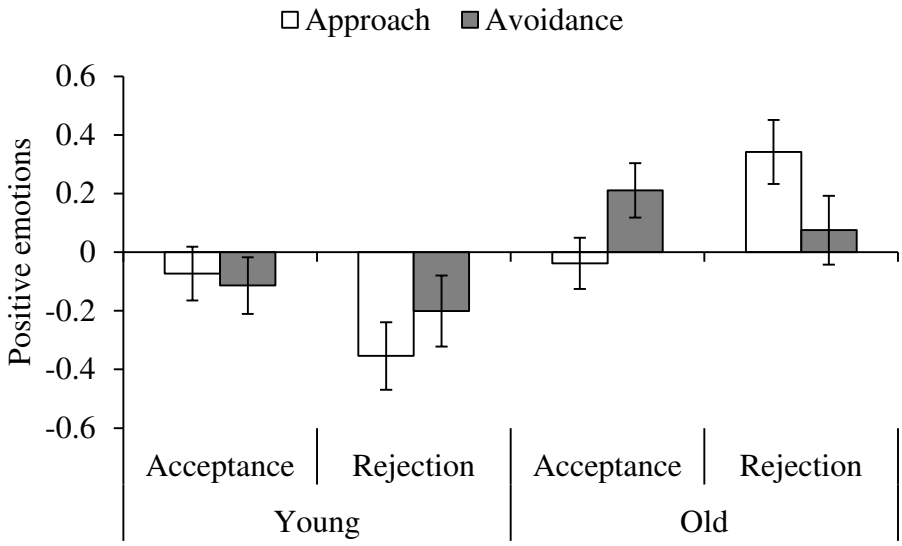
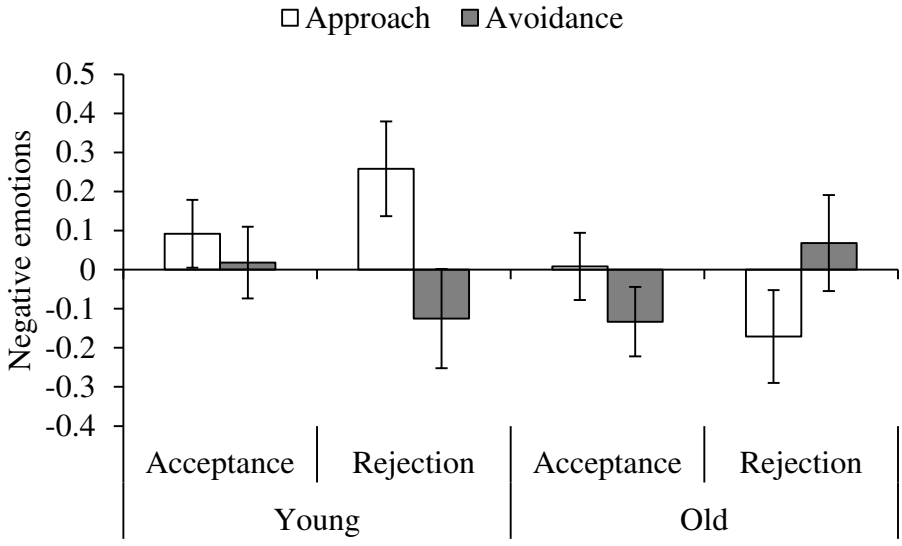


Figure 1. Habitual social approach and avoidance motivation. Error bars represent standard error of the mean.


Approach
Avoidance
Positive emotions
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Acceptance
Rejection
Acceptance
Rejection
Young
Old


Approach
Avoidance
Negative emotions
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
Acceptance
Rejection
Acceptance
Rejection
Young
Old

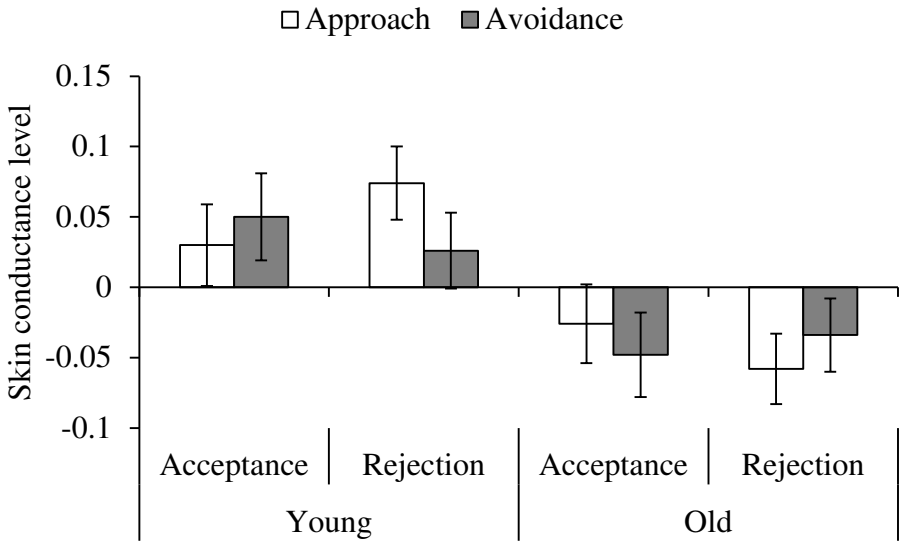

Approach
Avoidance
Skin conductance level
0.15
0.1
0.05
0
-0.05
-0.1
Acceptance
Rejection
Acceptance
Rejection
Young
Old

Figure 2. Self-reported positive emotions (upper graph), negative emotions (middle graph), and SCL (lower graph) in the social interaction as a function of situation (acceptance vs. rejection), manipulated motivation (approach vs. avoidance), and age (young vs. old). The presented values are residuals of emotions and SCL after/during the social interaction when baseline and gender are controlled for. Higher values indicate more positive and more negative emotions and higher physiological arousal. Zero represents the mean predicted value. Error bars represent the standard error of the mean.